

## A. Exon 1

Bsal BseRI SfiI - EarI  
 AGCTCAGAGACCCAGAGCCGCTCACAAATCACACAGGCTCTCCCGCCACGCACTGTGGCTTGGGCAACACGCTACAGGAAGAGGGGGGCTGGGCGGCCACCCGCGCT  
 TCGAGTCTCTGGGTTCTCGGCGGAGTGTATGTGTCTCGAGGAGGGGCGGGTGTGACGACGAAACCCGTTGTGGGATGTCTTCTCCGCCCGACCCCGCGGGTGGCGGA  
 EaeI BssHII EcoNI BamHI Sadi  
 GATTGCGGGAGCGCGCTGACGCGAGGATCCCGCTATAAAGTGGCGCCGCTGGTCCCTACGCGCAGAGCTTCTCGCCAGATTCGCGCGGTTTCTGCTTCAACAGTGCTTGA  
 CTAACCGGCTCTCGCGGACTGCGTCTAGGGCGATATTTACGCGGGGACGAGGATGCGGTCTGCAAGAGCGGGTCTCAGCGGCGCCAAAGGACGAAAGTTGTCAAGAACT  
 BshIKAI PshAI EagI Bpu10I BsrBI  
 ACCGAACCGCGTGTCTGACCCCTCGACCCCGCTCCGCGCGCTTTGAGCCTGAGCCCTTTGCAACTTCGTGCTCCGCGCTCCAGCGTCCGCTCCGCGCTCTCCAGCGCGC  
 TGCCTTGGGCGACGAGCTGGGAGGCTGGGGGACAGCCCGCGAAGCTCGGACTCGGGAAACGTTGAAAGCAGCGAGGCGCGAGGTTCGCAAGCGGAGCGCGAGGTCGGCGG  
 DrdI BspHI BsmBI BpmI NcoI  
 ATCATGACCAACCGCGTCTCCCTCGCAAGTGGCGCAGAACTACCACAGGACTCGAGGCTGCCATCAACCGCCAGATCAACCTGGAGTTGTATGCTCTACGTCTATCTGTCC  
 TAGTACTGGTGGCGCAGAGGAGCGTTACGCGGTCTTGTATGGTGGTCTGAGCCTCGGACGCTAGTTGGCGGTCTAGTTGGACCTCAACATACGAGGATCGAGATAGACAGG  
 ▶ Met Thr Thr Ala Ser Pro Ser Gln Val Arg Gln Asn Tyr His Gln Asn Ser Gln uAl aAla l le Asn Arg Gln l le Asn Leu Gln uLeu Tyr Ala Ser Tyr Val Tyr Leu Ser  
 DraIII Adel  
 ATGGTGAAGTGGCGCTGGCTTTGCGGGGCGGAAAGAGGGTGGCGCTGGCTCTCTTGGGCACTTGGTGAAGTGGCGAGGCTGGCGAGGCTGGTGGGGCGTGGCTGGCGG  
 TACCCTCAGCGCGGACCGGAAACGCCCGCTTTCTCCACGCGGACCGGAGGAAACCGGTGAACCACTCGACCGCTCCACCCAAACCCGACCGACGCGCC  
 ▶ Met

## B. Exon 2

Eco57I BspI  
 GCATCTGCTCTGCTGGGATCAATAACAAATACCTTTCCACTTTCAGTCTTGTATTTTACCAGGATGATGTGCCCTGAAGAATCTTGCCAAATACTTTCCATCAATCT  
 CGTAGACGGRACGACCCCTAGTTATTTATTTATGGGAAAGGTGAAGTACAGAACTAAACTGGCCCTACTACACCGGACTTCTTGAAACGGTTTATGAAAGAGGTATTTAGA  
 ▶ Ser Cys Tyr Phe Asp Arg Asp Val Ala Leu Lys Asn Phe Ala Lys Tyr Phe Leu His Gln Ser  
 EarI NspI PstI BstXI SbfI EcoRV AccI  
 CATGAAGAGAGGGAACATGCTGAGAGAACTGATGAAGCTGCAGAACCCAGCGAGGTGGAGCAATCTTCTGCAAGATATCAAGGTAAAGTAGACTATGGGACTGCGTTAAATGAGCAGT  
 GTACTTCTCTCCCTTGTACGACTCTTGACTACTTGCACCTCTTGTGCTCCCACTGCTTAGAAGGACGCTCTATAGTTCCATTCATCTGATACCTGACGCAATTTACTCGTCA  
 ▶ His Gln uGln Arg Gln uHis Ala Gln uLys Leu Met Lys Leu Gln Asn Gln Arg Gln uGln uArg Gln l le Phe Leu Gln Asn l le Lys

## C. Exons 3 and 4

PstI AflIII BmrI BsrBI BsmI BsrDI ApaLI BspI  
 CTGCAGATGAATTGACATGTTTCTTTGATTGACAAACCTGACCGTGTGACTGGGAGAGCGGGCTGAATGCAATGAGGTGTGCACTGCACTGGGAAAGAGTGTGAATCAGTCA  
 GACGTCTACTTAAGTGTACAAAGAACTAAGTCTTTGGACTGGCACTACTGACCCCTCTCGCCGACTTACGTTACTCCACAGCTGACGTGAACCTTTCTCACACTTAGTCACT  
 ▶ Lys Pro Asp Arg Asp Asp Trp Gln uSer Gln uLeu Asn Ala Met Arg Gln uSer Ala Leu His uLeu Gln uLys Ser Val Asn Gln Ser  
 PmlI DraIII  
 CTACTGGAACCTTCACAACTGGCTACTGACAAAGATGATCCCACTGAGTATCAGAAACACGCGGTGAGTGGAGATGATTTGCCACAGGGCTTGGGAGAGCTGACCACTAACCC  
 GATGACCTTGAAGTGTGACCGATGACTGTTCTTACTAGGGGTGCACTCATAGTCTTTGTGCCCACTCACCTCTACTAAACGGTGTCCCGAACCTCTGCACTGGTCATTGG  
 ▶ Leu Leu Gln uLeu His uLys Leu Ala Thr Asp Lys Asn Asp Pro His  
 BsmBI BspMI XcmI BmrI BstEII PmlI  
 CTGTCCCATGTTCTCTTCTAGTTATGTGACTTCATTGAGACGCATTACCTGAATGAGCAGGTGAAATCCATTAAAGAACTGGGTGACCACTGACCACTTACCGAGATGG  
 GACAGGGTACAAAGAGAAAGGATCAATACACTGAAGTAACTCTGCGTAATGGACTTACTCGTCACTTAGGTAATTTCTTGACCACTGGTGCAGTGGTTGAATGCGTTCTACC  
 ▶ Leu Cys Asp Phe l le Gln uThr His Tyr Leu Asn Gln uGln uVal uLys Ser l le Lys Gln uLeu Gln uAsp His Val Thr Asn Leu Arg Lys Met l G  
 BmrI MslI BspI AallI StyI BstAI  
 GAGCCCTGAATCTGGCATGGCAGAAATCTCTTTGACAAGCACCCCTGGGACAGCGTGTGAGAGCTAAGCTGACGTCCCAAGGCCATGTGACTTACTGGCTCACTGAGG  
 CTGCGGGACTTAGACCGTACCGCTTTATAGAGAACTGTTCGTGGGACCCCTGTGCACTACTCTCGATTGCACTGACGGGTTCCGGTACACTGAAATGACCGAGTGAATCC  
 ▶ l yAl aPr oGln uSer Gln uMet l aGln uTyr Leu Phe Asp Lys His Thr Leu Gln uHis Gln uAsp Gln uSer \*\*\*  
 Ppu10I NsiI XapI Apol KpnI  
 EcoT22I AclI BmrI  
 SphI  
 CAGTGCATGATGTGAGGCTGCGCTTTATCTTTCTATAAGTTGCACAAACATCTGCTTAAAGTTCTTTAATTTGTACCATTTCTTCAAATAAAGAAATTTTGGTACCCAGCT  
 GTACCGTACGTACAGTCCGACGGAAATAGAAAAGATATTCAACGTGGTTTTGTAGACGAATTTTCAAGAAATTAACATGGTAAAGAAATTTATTTCTTAAACCATGGGTGCA  
 SspI  
 CTTGTTGTGATTGAGGATGAGCGCACCGACTTCCCTTGCCTGGCTATATAACACACTGCAACCGCTGAAAGAAATATTTATTAATCTCGTATTTGGGGAAGATAGTGAAGA  
 GAACAACACTAACTCTACTCGCTGGTGGTGAAGGAAACGACCGGATATATTGGTGTGACGTTGCGGACTTTCTTATAAATAATTTGAGCATCAACCCCTTCTATCACTTTCT  
 DseDI BspMI StyI NcoI XmnI SmlI  
 DrdI  
 CAGGTGTGTTGACAGAGGACTAAGCAGTCTGGTTCTGAGTTACTGCCAGACTGCCATGGGAACATATTCTTGAGTGTG  
 GTCCACACAGTCTGTCTGATTCTGTCAGGACCAAGACTCAATGACGGTCTGACGGTACCCCTGTATAGAACTCACAG

FIGURE 1

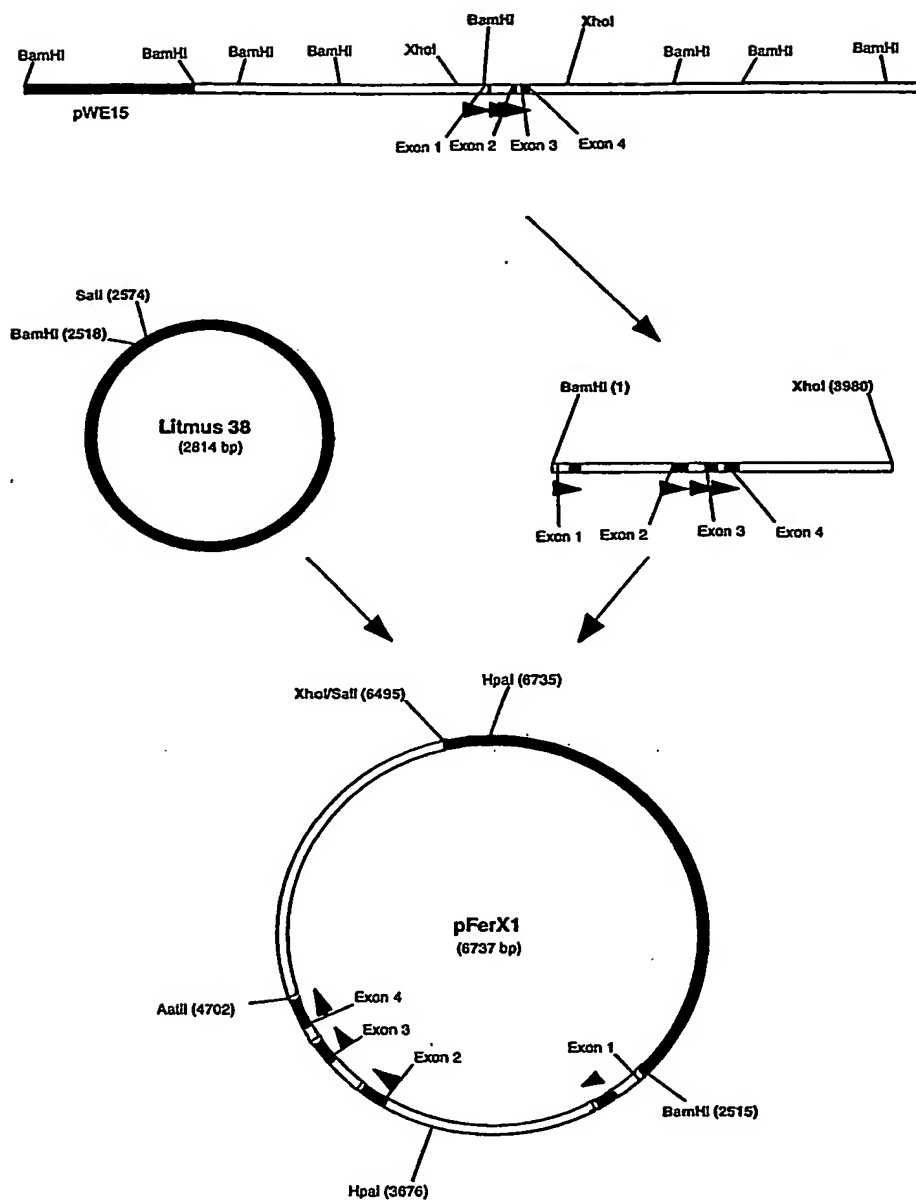


FIGURE 2

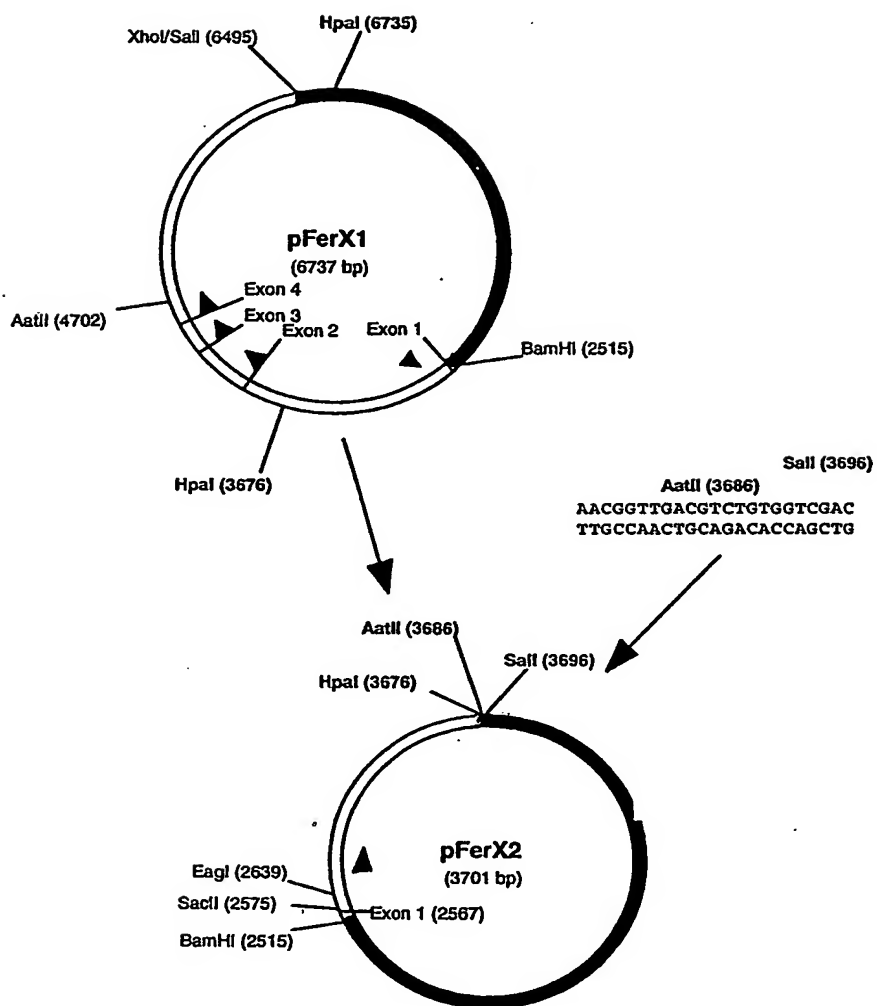


FIGURE 3

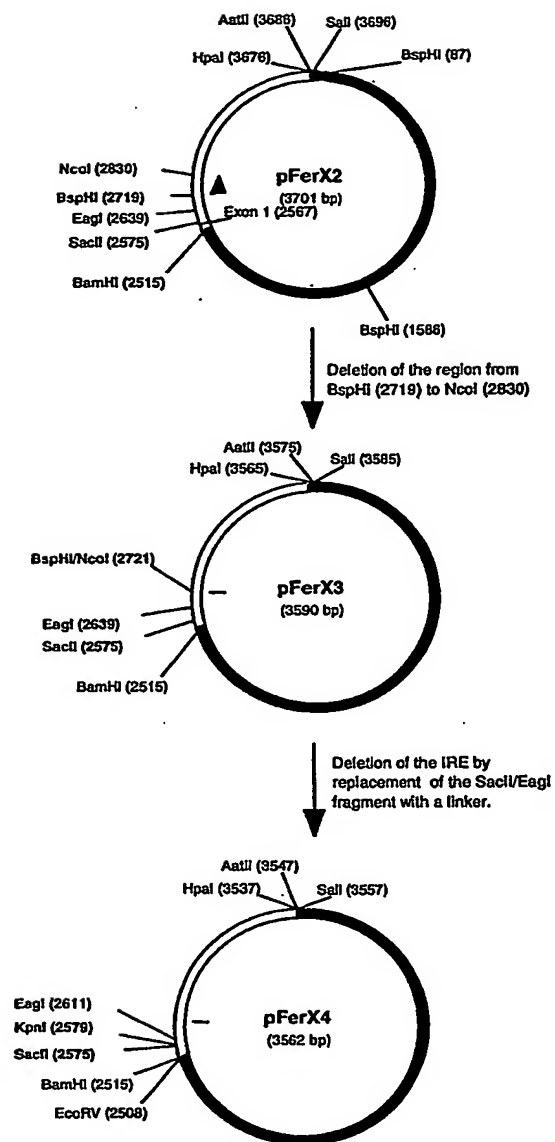


FIGURE 4

**FIGURE 5A**

C.

FN1      Swa-1    NotI            AatII  
 ACTTTGAGCTGCTAGCGGCGCGCTGACGTCCCAAGGCCATGTGACTTTACTGGTCACTGAGGCAGTGCATGCATGTGAGGCTGCCTTTATCTTT  
 TCTATAAGTTGCACCAAAACATCTGCTTAAAGTCTTTAATTTGTACCATTTCTTCAAATAAAGAATTTTGGTACCCAGCTCTTGTGTGATTG  
 Fer4

D.

Fer1  
 ATC TGT CCA TG GTGAGTGCAGGCTGGCCTTTGGCGGGGCGAAAGAGGGTGCAGGCTGGCCTCCCTTGGGCCACTTGGTGAGCTGGCGGAGGG  
 TGGGTTGGGGCGTGGCCTGCTGCGGGCTTCCCGCCTTCCAGCGCCCTTCTGGAAAATGGAGTTTGTCCGGGGTTCTTTCAAAGGCAGGCAGCCCT  
 GCCGTGGCAAGTCTGAGCACCTAGCGCTTTGTGGCTCCTGCATAGACCAGGCACGTGATAACACCCGTGTTTGAAGCCTTAGGGCTGTACAACCTGT  
 CAGCCTCTCCAATCAACCCCTGCAGTTAGGTGCATTTTCTGCACTCTCGTCCCTCCGGTCACATGGCCTGCAGGCTTCTCTGTTTGGGTGTACATC  
 CAGCTCCAGTTCCCTCTGACTATGGCGGGTCTGCTTGGTCACTGGTGTGGAAATGGCAGCCCTGGGGCTTGGTACAAAGAGGCTTATCTCTTGTGAACCTT  
 ACTCTAACCACTTCTGAAGCAGCGGCTCTACATCTCTGCTTATCACAGAGCCTCAGTTCATTGAACTTATCGCTAGGAATCTCCCTTCTGTAA  
 TCACCTGACCTTGCCAAGGCATCTAGAGTACTGTACGTTTTTAATTTTTATTTTGCACCAAGTTGTTGCTTACTAACAGAAGTAGTAGGTAAACATAC  
 TTGTTGGAAAAGCCACGGTTGGGAAAAAACATTATCGTGGAATACAAATACACTGAGTGCCTAAACTGAAAATCAAAGCTTCTCCCAATGTAT  
 HpaI  
 TTGTGCTAAAATACAATGCCCTCAGTTCTTAACCAGGTAATCAGCAGTTGGCTGTCTAGCTGAAAACCTTGAGACCTTGTGTTAACCATTTTTTTTA  
 TTTAACATGATTGTTGAAGGAGAGAATTGACCTCCCAATGTAGGSCACTTTAGCACCCCTCTCAGACAAATAGATATGGCCTTGGCTTAAAGTT  
 TTTTCTCTGCACTAATGTGGAGCCATAGAACCCTTGATAAGCCAAGTCCCAAGTTTGTGTTTCCCATCCTTACTTTAAAGGCCAAGTAGGGTGACAA  
 Swa-1    SwaI      Swa-2    NotI            AatII  
 ACAGCCTTTACCACCATTCATCTGCCTTGCTGTGGGATCAATAACAAATACCCCTTCCATTAAATCTGCTAGCGGCGCTGACGTCCCAAGGC  
 CATGTGACTTTACTGGTCACTGAGGCAGTGCATGCATGTGAGGCTGCCTTTATCTTTCTATAAGTTGCACCAAAACATCTGCTTAAAGTCTTTA  
 Fer4  
 ATTTGTACCATTTCTTCAAATAAAGAATTTTGGTACCCAGCTCTTGTGTGATTG

FIGURE 5 B

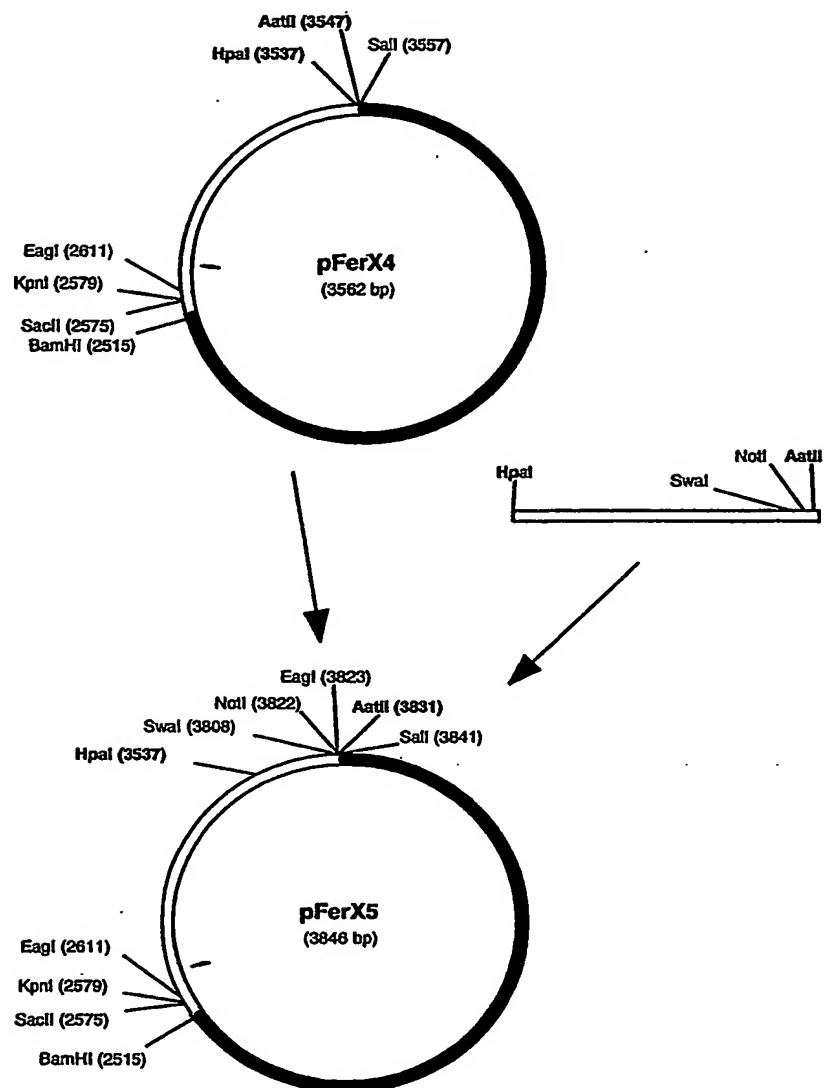


FIGURE 6

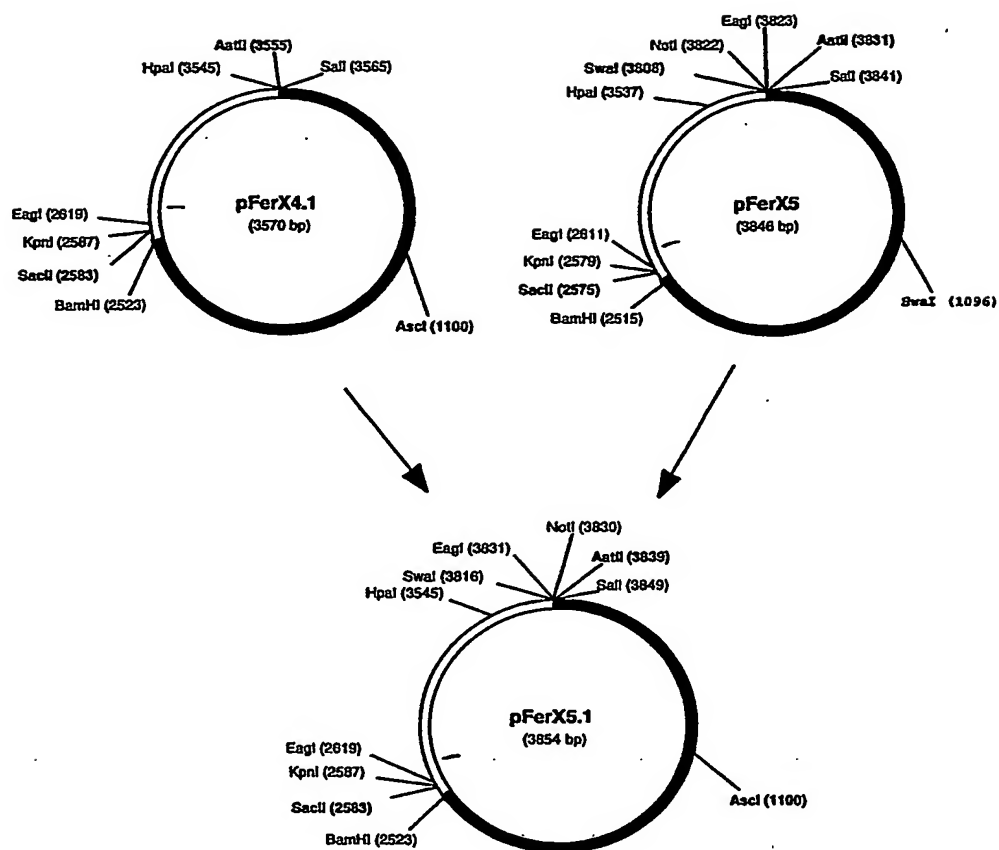


FIGURE 7



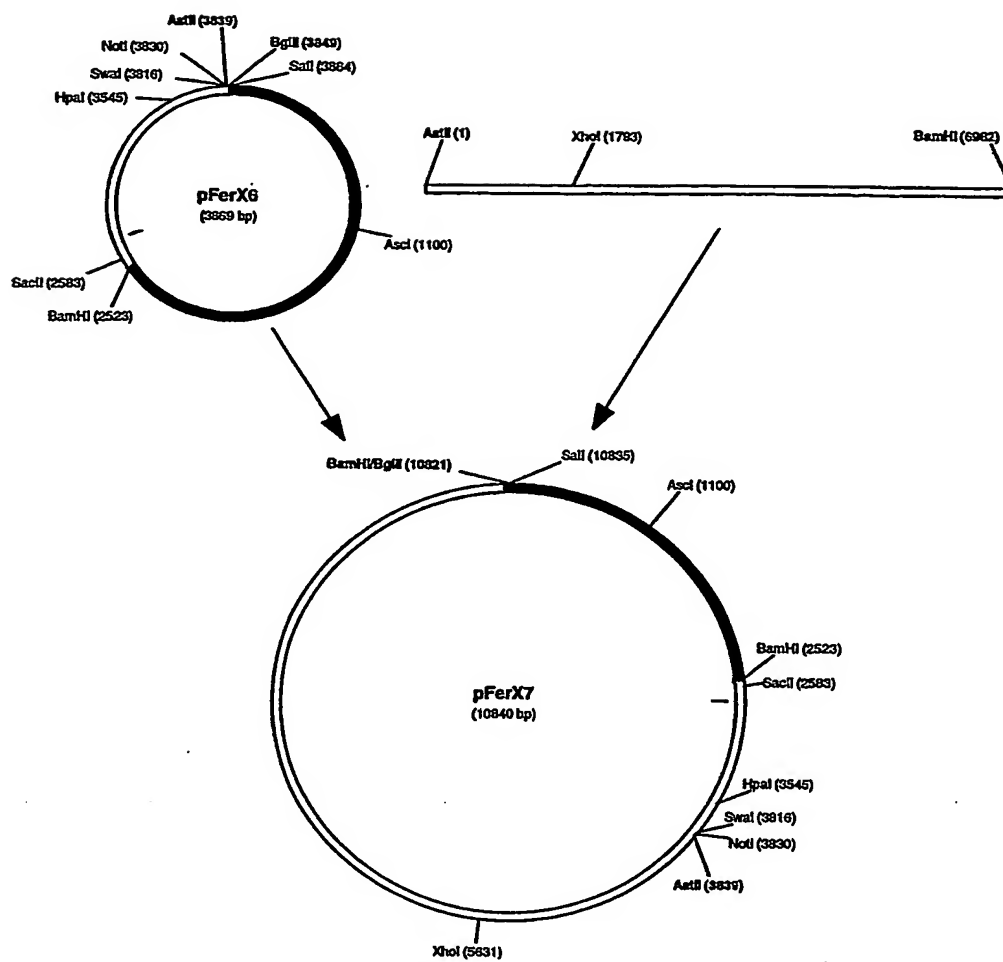


FIGURE 8

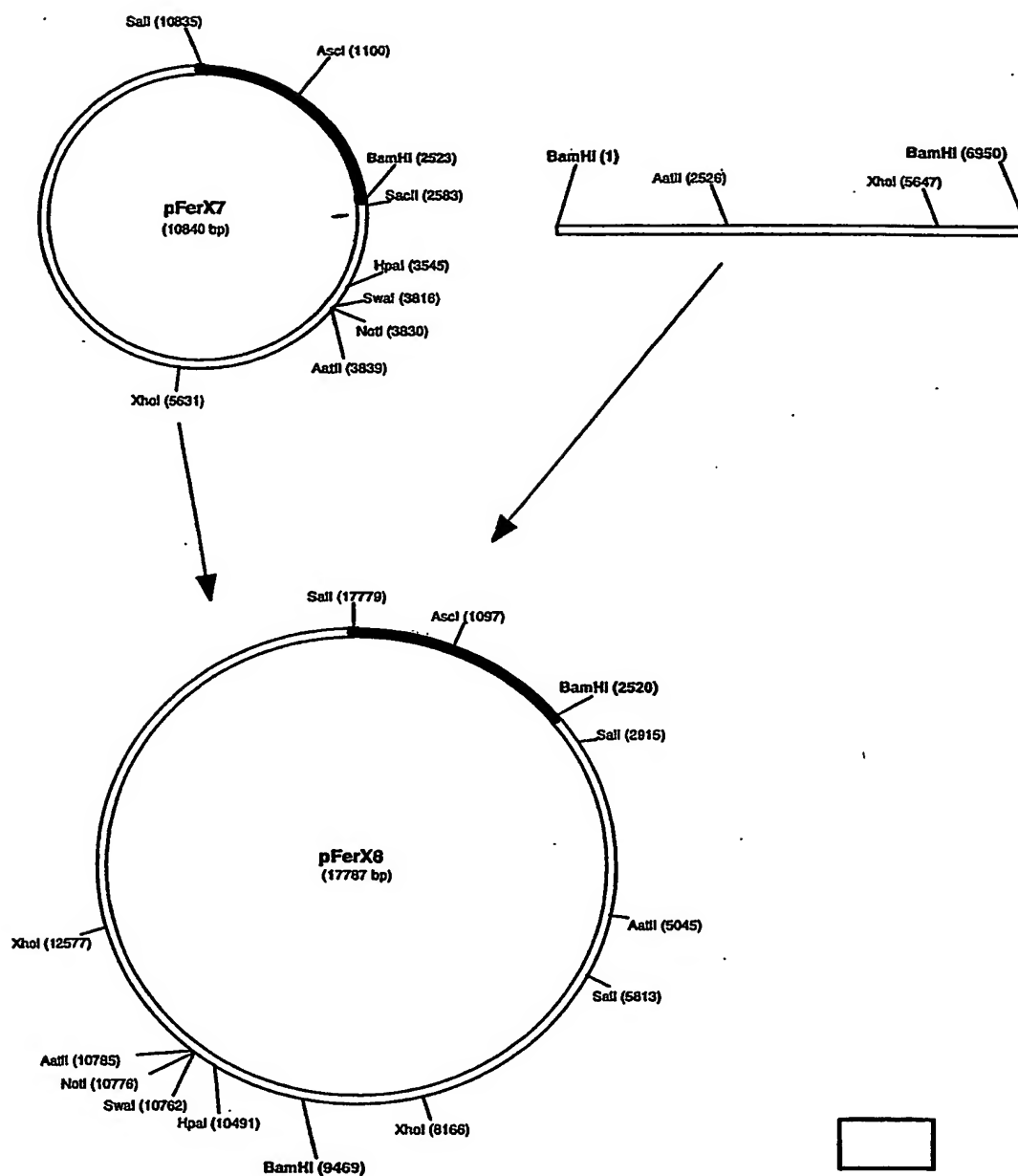


FIGURE 9

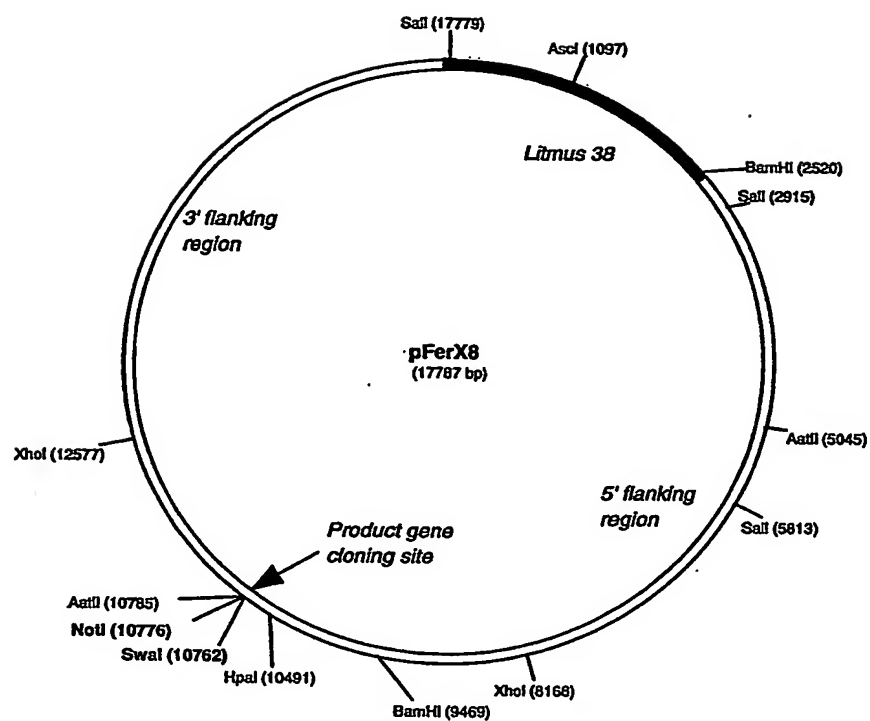


FIGURE 10

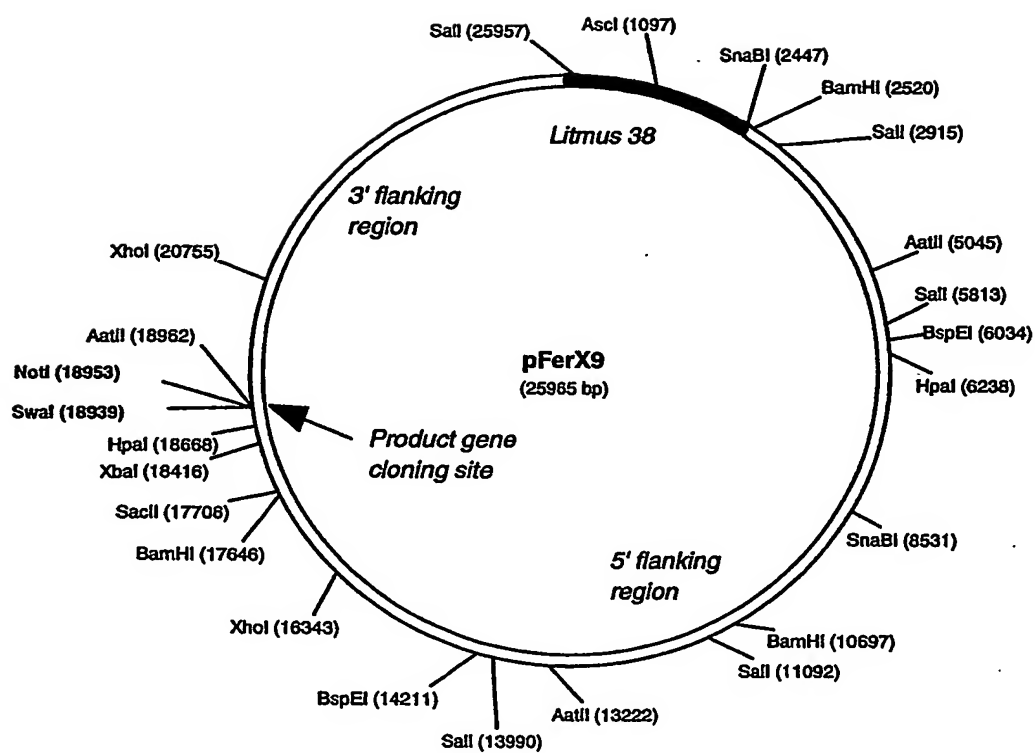


FIGURE 11

BamHI (9469) SacII  
CAP (9521) KpnI (9533)  
GGATCCCGCTATAAAGTGC GGCCCGCTGGTCCCTACGCCAGACGTTCTCGCCAGAGTCGCCGCGGTACCGGTGCTCG  
ACCCCTCCGACCCCGTCCGGCCGCTTTGAGCCTGAGCCCTTTGCAACTTCGTCGCTCCGCCGCTCCAGCGTCGCCCTC  
CGCGCTCGCCAGCCGCCATC ATG gtgagtgcggcctggcctttggcggggcggaagaggggtgcggcctggcct  
Met  
cccttggggcacttgggtgagctggcggaggggtgggttggggcgtggcctgctgcgggcttccccgccttcagcgcctc  
ttctggaaaatggagtgtgtcgggggttctttccaaaggcaggcagccctgccgtggcaagtctgagcacctagcgt  
ttgtggctcctgcatagaccaggcagtcataacaccctgttttgaagccttagggctgtacaactgtcagcctctc  
caatcaaccctgcagtttaggtgcattttcctgcactctcgtccctccgggtcacatggcctgcaggttctctgtttg  
gggtgtacatccagctccagttcctctgactatggcgggtctgcttgggtcatgggtgtggaatggcagccctggggcttg  
gtacaaagaggcttatctctgtgaacttactctaacccttctgaagcagcggcctctacatctctgcttatcacag  
agcctcacttgcattgaaacttatcgctaggaatctcccttctgtaatcaccctgaccttgccaaggcatctagagt  
actgtacgtttttaattttttatgtgcaccagttgttgcttactaacagaagtagtaggtaacatacttgttggaaaa  
agccccaggttgggaaaaaaccattatcgtggaatacaaatatactgagtgccctaaaactgaaaatcaaagcttctcc  
caatgtatgtgtctaaaaatacaatgccctcagttcttaaccaggtaatcagcagttggctgtctagctgaaaacctt  
gagaccttgtgttaaccattttttttatttaacatgattgttgaaggagagaattgacctcccaatgtagggcacttt  
agcacccccctctcagacaaatagatatggccttggcttaaagttttttctctgcactaatgtggagccatagaacc  
cttgataaagccaagtcccaagttgttttccatccttactttaaggccaagtaggggtgacaaacagcctttacca  
AatII (10785)  
ccattgcatctgccttgctgtggggatcaataacaaataccctttccatttAAATCTGCTAGCGCCGCTGACGTCCC  
CAAGGCCATGTGACTTTACTGGTCACTGAGGCAGTGCATGCATGTCAGGCTGCCTTTATCTTTTCTATAAGTTGCACC  
SwaI (10762) NotI (10776)  
AAAACATCTGCTTAAAGTTCTTTAATTTGTACCATTCTTCAAATAAAGAAATTTGGTACCCAGCTCTTGTGTGAT  
KpnI (10927)  
TGAGGATGAGCGCACCAGCTTCCCTTGCCTCGGCTATACTAACCACACTGCA

FIGURE 12

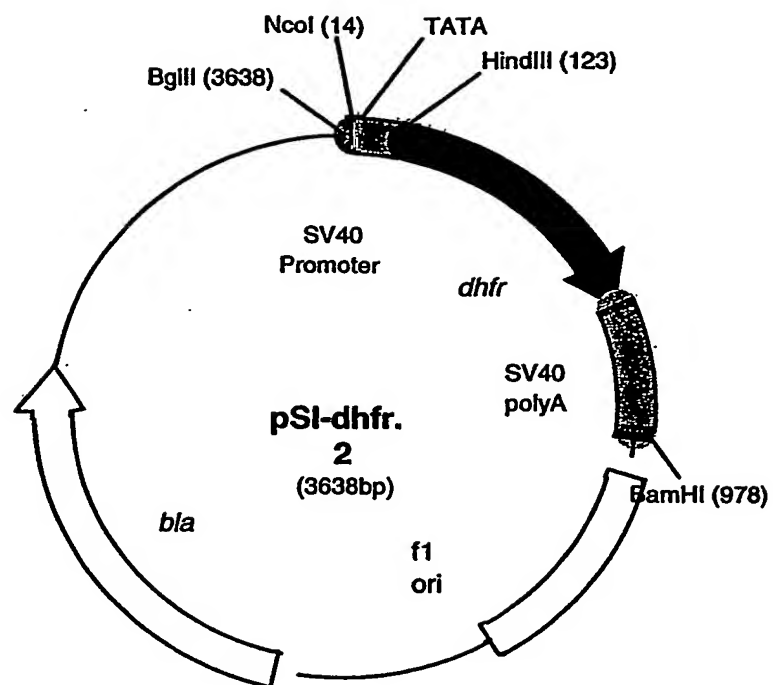
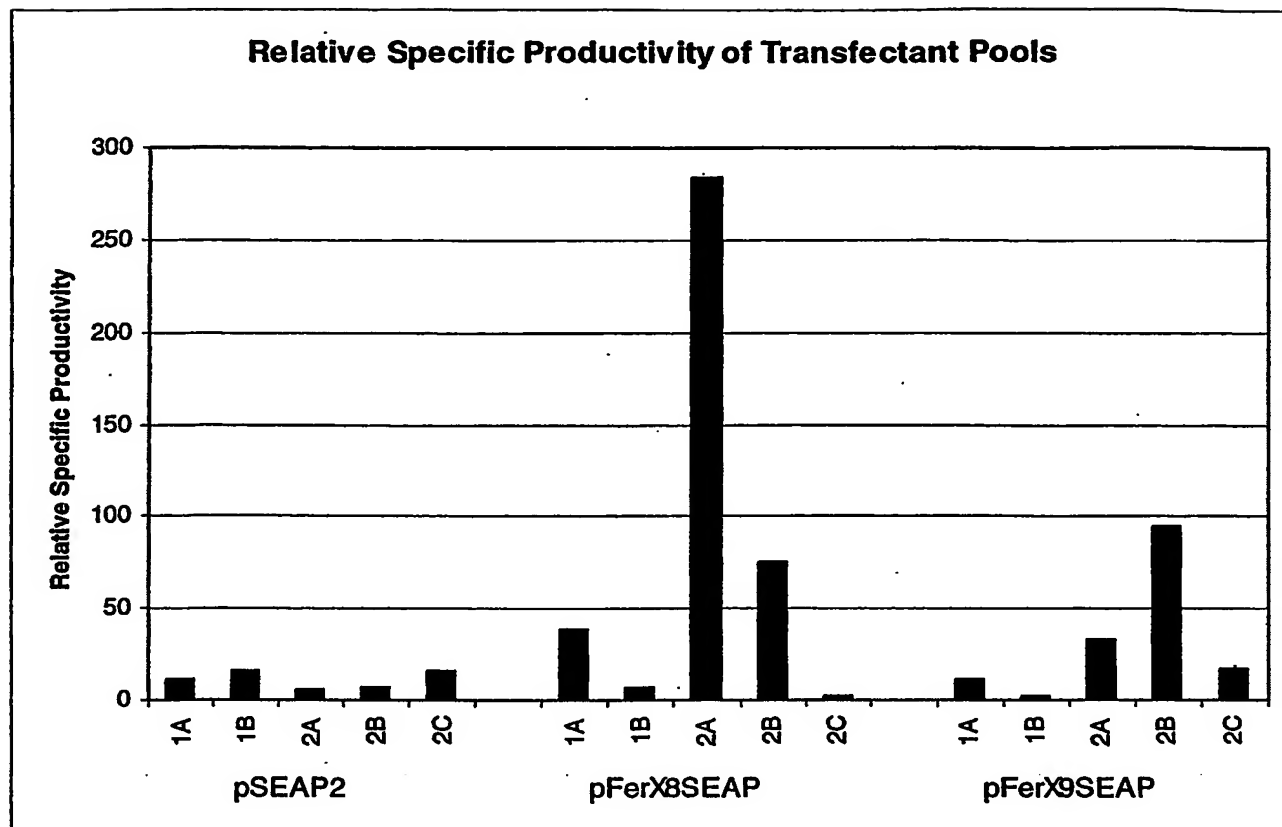


FIGURE 13

**FIGURE 14**

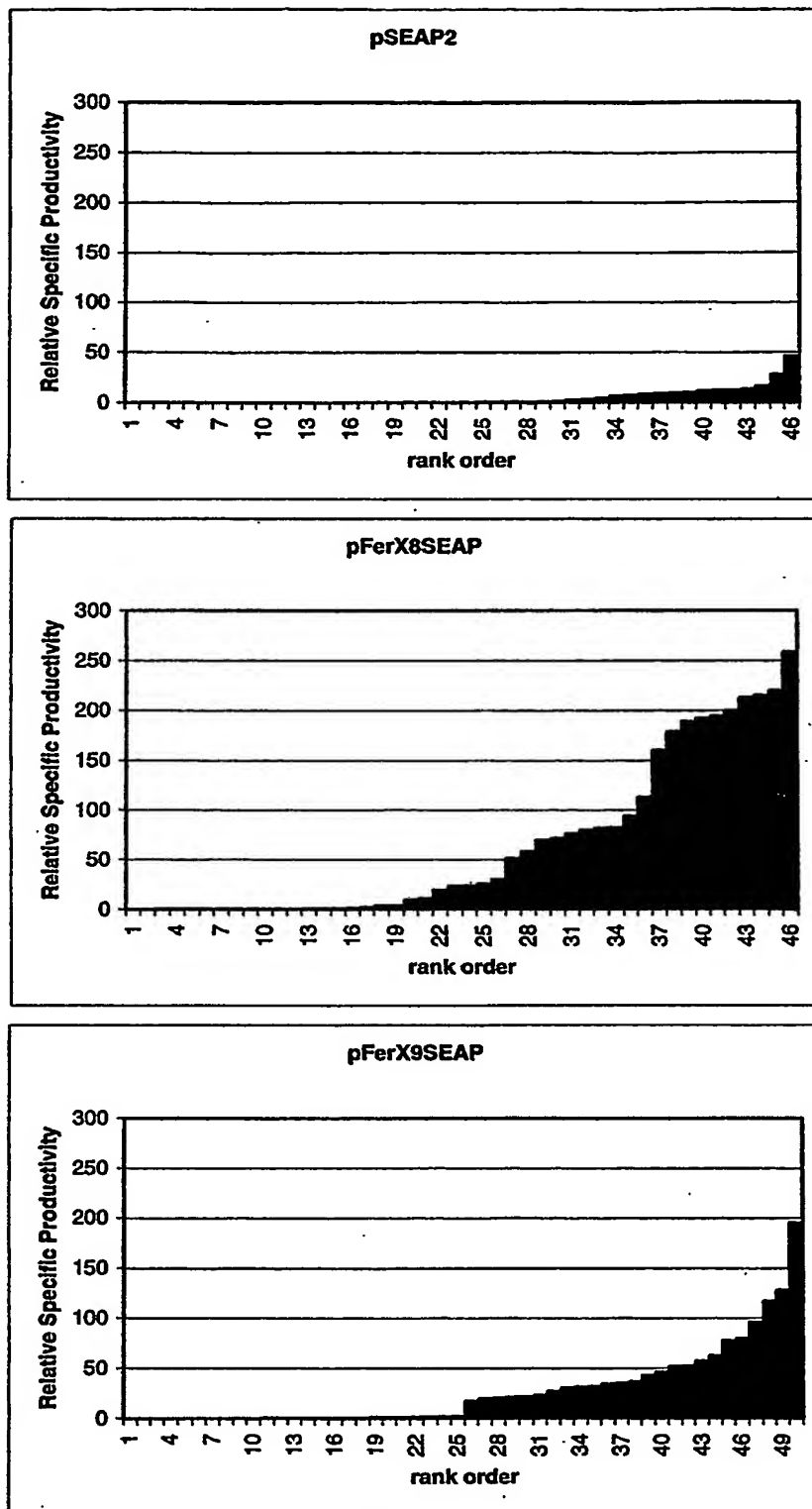


FIGURE 15